SEQUENCE LISTING

<110> KETCHUM, Karen et al.

<120> ISOLATED HUMAN TRANSPORTER PROTEINS,
    NUCLEIC ACID MOLECULES ENCODING HUMAN TRANSPORTER PROTEINS,
    AND USES THEREOF

<130> CL001013

<150> 09/815,301
<151> 2001-03-23

<150> 60/254,554
<151> 2000-12-12

<160> 5

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 1468
<212> DNA
<213> Human

<400> 1
gcccttggca gcagccctgt taccgcttag atggcgcgca ggacagagcc ccccgacggg 60
ggctggggac gggtggtggt gctctcagcg ttcttccagt cggcgcttgt gtttggggtg 120
ctccgctcct ttggggtctt cttcgtggag tttgtggcgg cgtttgagga gcaggcagcg 180
cgcgtctcct ggatcgcctc cataggaatc gcggtgcagc agtttgggag cccggtaggc 240
agtgccctga gcacgaagtt cgggcccagg cccgtggtga tgactggagg catcttggct 300
gcgctgggga tgctgctcgc ctcttttgct acttccttga cccacctata cctgagtatt 360
gggttgctgt caggctctgg ctgggctttg accttcgctc cgaccctggc ctgcctgtcc 420
tgttatttct ctcgccgacg atccctggcc accgggctgg cactgacagg cgtgggcctc 480
tcctccttca catttgcccc cttttttccag tggctgctca gccactacgc ctggaggggg 540
tccctgctgc tggtgtctgc tctctccctc cacctagtgg cctgtggtgc tctcctccgc 600
ccaccctccc tggctgagga ccctgctgtg ggtggtccca gggcccaact cacctctctc 660
ctccatcatg gcccccttcct ccgttacact gttgccctca ccctgatcaa cactggctac 720
ttcattccct acctccacct ggtggcccat ctccaggacc tggattggga cccactacct 780
gccgccttcc tactctcagt tgttgctatt tctgacctcg tggggcgtgt ggtctccgga 840
tggctgggag atgcagtccc agggcctgtg acacgactcc tgatgctctg gaccaccttg 900
actggggtgt cactagccct gttccctgta gctcaggctc ccacagccct ggtggctctg 960
gctgtggcct acggcttcac atcagggget ctggccccac tggccttctc tgtgctgcct 1020
gaactaatag ggactagaag gatttactgt ggcctgggac tgttgcagat gatagagagc 1080
atcgggggc tgctggggcc tcctctctca ggctacctcc gggatgtgtc aggcaactac 1140
acggcttctt ttgtggtggc tggggccttc cttctttcag ggagtggcat tctcctcacc 1200
ctgccccact cttctgctt ctcaactact acctccgggc ctcaggacct tgtaacagaa 1260
gcactagata ctaaagttcc cctacccaag gaggggctgg aaggaggact gaactccaca 1320
gagtcaggcc cagaaagcca aagcttgaca gctccaggtc ttctcttgcc acgtcttggt 1380
ctccacagaa ccacagtgcc ttaagattct tgatctgcct ccccctagag caggcctggg 1440
gctcctgcaa tgtgtgtgcc aacccttt 1468

<210> 2
<211> 457
<212> PRT

<213> Human

<400> 2
```
Met Ala Arg Arg Thr Glu Pro Pro Asp Gly Gly Trp Gly Arg Val Val
1               5                   10                  15
Val Leu Ser Ala Phe Phe Gln Ser Ala Leu Val Phe Gly Val Leu Arg
            20                  25                  30
Ser Phe Gly Val Phe Phe Val Glu Phe Val Ala Ala Phe Glu Glu Gln
        35                  40                  45
Ala Ala Arg Val Ser Trp Ile Ala Ser Ile Gly Ile Ala Val Gln Gln
    50                  55                  60
Phe Gly Ser Pro Val Gly Ser Ala Leu Ser Thr Lys Phe Gly Pro Arg
65                  70                  75                  80
Pro Val Val Met Thr Gly Gly Ile Leu Ala Ala Leu Gly Met Leu Leu
                85                  90                  95
Ala Ser Phe Ala Thr Ser Leu Thr His Leu Tyr Leu Ser Ile Gly Leu
            100                 105                 110
Leu Ser Gly Ser Gly Trp Ala Leu Thr Phe Ala Pro Thr Leu Ala Cys
        115                 120                 125
Leu Ser Cys Tyr Phe Ser Arg Arg Arg Ser Leu Ala Thr Gly Leu Ala
        130                 135                 140
Leu Thr Gly Val Gly Leu Ser Ser Phe Thr Phe Ala Pro Phe Phe Gln
145                 150                 155                 160
Trp Leu Leu Ser His Tyr Ala Trp Arg Gly Ser Leu Leu Leu Val Ser
                165                 170                 175
Ala Leu Ser Leu His Leu Val Ala Cys Gly Ala Leu Leu Arg Pro Pro
            180                 185                 190
Ser Leu Ala Glu Asp Pro Ala Val Gly Gly Pro Arg Ala Gln Leu Thr
        195                 200                 205
Ser Leu Leu His His Gly Pro Phe Leu Arg Tyr Thr Val Ala Leu Thr
        210                 215                 220
Leu Ile Asn Thr Gly Tyr Phe Ile Pro Tyr Leu His Leu Val Ala His
225                 230                 235                 240
Leu Gln Asp Leu Asp Trp Asp Pro Leu Pro Ala Ala Phe Leu Leu Ser
                245                 250                 255
Val Val Ala Ile Ser Asp Leu Val Gly Arg Val Val Ser Gly Trp Leu
            260                 265                 270
Gly Asp Ala Val Pro Gly Pro Val Thr Arg Leu Leu Met Leu Trp Thr
        275                 280                 285
Thr Leu Thr Gly Val Ser Leu Ala Leu Phe Pro Val Ala Gln Ala Pro
        290                 295                 300
Thr Ala Leu Val Ala Leu Ala Val Ala Tyr Gly Phe Thr Ser Gly Ala
305                 310                 315                 320
Leu Ala Pro Leu Ala Phe Ser Val Leu Pro Glu Leu Ile Gly Thr Arg
                325                 330                 335
Arg Ile Tyr Cys Gly Leu Gly Leu Leu Gln Met Ile Glu Ser Ile Gly
            340                 345                 350
Gly Leu Leu Gly Pro Pro Leu Ser Gly Tyr Leu Arg Asp Val Ser Gly
        355                 360                 365
Asn Tyr Thr Ala Ser Phe Val Val Ala Gly Ala Phe Leu Leu Ser Gly
    370                 375                 380
Ser Gly Ile Leu Leu Thr Leu Pro His Phe Phe Cys Phe Ser Thr Thr
385                 390                 395                 400
Thr Ser Gly Pro Gln Asp Leu Val Thr Glu Ala Leu Asp Thr Lys Val
                405                 410                 415
Pro Leu Pro Lys Glu Gly Leu Glu Gly Gly Leu Asn Ser Thr Glu Ser
                420                 425                 430
```

```
Gly Pro Glu Ser Gln Ser Leu Thr Ala Pro Gly Leu Leu Leu Pro Arg
        435               440               445
Leu Gly Leu His Arg Thr Thr Val Pro
    450               455
```

<210> 3
<211> 6566
<212> DNA
<213> Human

<220>
<221> misc_feature
<222> (1)...(6566)
<223> n = A,T,C or G

<400> 3
```
cattttagt gcatggattt tctaactgaa cccccttgggc aacgcttaat agtaggtact 60
attatcccca gtttacagat ggggaaacca actgagagat tcagcatctt gatcgagtta 120
agtaataaag tcaagattgg aactgggcca ggcacggtgg ctcacgcctg taatcccagc 180
actttgggag gccaaggctg gtggatcact tgaggtcagg agttcgagac cagcgtggcc 240
aacatggtga gacctcgtct ctactaaaaa taccaaaatt aactgggcgt gtggtgggga 300
gcctgtaatc ccagaaactc aggagactga ggcaggagaa tcacttgaac ccgggaggtg 360
gaggttgcag tgagccaaga tcatgccact gcactccagc ctgggccaca gagcaagact 420
ccgtctcaaa ataaataaat aaataaataa ataaataaaa gactggaact gtgatctgat 480
tctaaagacc cgagttctta atcactatgt aatacagcca cagcaatttc tgtatctttg 540
gcatattccc caccagccga cattttgact cttagaaagt atatatgtgt attattgatg 600
attacttta tttcccacat ataaaattat ttaaggctca atatgtcttt taagactgca 660
cacctccctc cctgcctcca cttcttgttt gctgctttcc ccagtaatct gggagtgaac 720
attgagtcca cggtttcaag gtcagggtcc tgggaagtat ggcttataat gaaggaacag 780
gaaatccaag ccattggtgt tatggagact gggaaggact ggggagtgtt tgctaggggc 840
ctgaggacta cttgggtaag aggggggctga ctgctccagt ggccagggtc atagttttgt 900
ctctttagtc taccccacca tcagatcaaa aaaggtggtt aggaagtggt tgttactaga 960
gggcagagga aaaggttcca gccccagtga ggaagaggta ggtggtgttg gtggggccct 1020
gtgtgagctt acagccgccc ttcctctcct cagttatttt tggtctctgt gacctgtagg 1080
tttcctgtta gtgggaacag aagtgacagg aacgagttcc cactacagaa atgaacgcca 1140
ggagtccaac tcattcccct tctctcttcc cttagccgtt gaacttctca gggatccagg 1200
cttctaggtc tgcgtgccta gggctgcgtg ttagtggctt caggcgctgc gccaaacact 1260
tcgtttgagt ctcatctcct aacccctccc ctacccccaa cagggccttg caattcctgg 1320
acccctcatt aaagcaagag agtcctctcc tctccagacc cagtttaccc accactaacc 1380
cttccgtgtg gctctgggtg ctgaaacggg gatgacttgg cccgctaggt gaagaggaga 1440
cggaagcttc ctggcagtcc ccgcgtcacg tgggccccta cctagtcagc ctcctaacgc 1500
ccctccttac gcatgcgccc attcactgct ggtccccaac aatgcctaaa tcccgccctg 1560
cccttctcgt tccgcccctg cccgggagcc ccgcgtcctc attggcgagc tccagggtgg 1620
cccggcccgg acaccccagt gataaaatag atcatctaca cggaaactgg cgcgctccag 1680
gggtgggggcc caaactcagt tccaccctct ggctcccagc cgaacaccga accgggaccg 1740
atccggcccc ggcttgaact agctcagctc cgagctcgcg gaaccacgcc cccgggagac 1800
tctggcccgg ccagcgcggg ccaggtcttc agtcctatat cgccctgcct tgggaaaagg 1860
tgcagggggcc tctcgccgcc tcgtcgggcc cttcctctct acctgcctct ccaacccctc 1920
tcggccccga gccacccggc agcggggggtg ggtgtgcaga ggtgcggcgt ccagaacccg 1980
gctcctgcag aggctctggg tggcagcagc cctgttaccg cttagatggc gcgcaggaca 2040
gagccccccg acgggggctg gggatgggtg gtggtgctct cagcgttctt ccagtcggcg 2100
cttgtgtttg gggtgctccg ctcctttggg gtcttcttcg tggagtttgt ggcggcgttt 2160
gaggagcagg cagcgcgcgt ctcctggatc gcctccatag gaatcgcggt gcagcagttt 2220
gggagtgagt gcggcgcctg gatctggcgg actgcgaccc tcggaaggga gagggaatgc 2280
ggcgactggg aagtggaagg gcgagggggcg ggagatgctg ggggggagac ccctgagatc 2340
ttctcgcagc gccccttcca cttcctcagg cccggtaggc agtgccctga gcacgaagtt 2400
```

```
cgggcccagg cccgtggtga tgactggagg catcttggct gcgctgggga tgctgctcgc 2460
ctctttttgct acttccttga cccacctata cctgagtatt gggttgctgt caggtgagag 2520
cctgcacaag ggcaggagag tcaaatgctt agatcgttgg atgttcacct ccttcctgct 2580
ccttccaaag ggttcgggga gaagctgagg gaaagtttag ctagcacctg tacccagaag 2640
ggaattctta ataggaatga ctaaagcgac aaacatggtg aggaattagg aaattcaagg 2700
atgatgaaac ctggccaggc acggtggctc acgcctgtaa tcccagcact ttgggaagcc 2760
gaggcgggtg gatcacgagg tcaggagttt gagaccagcc tggccaacat ggtgaaaccc 2820
cgtctctaca aaaatacaaa aattagccgg gcctggtggc gctaatccca gttactcggg 2880
aggctgaggc aggagaatcg cttgaacccg ggaggcggag gttgcagtga gccaagatcg 2940
caccactgca ctccagcctg ggcgacagag caagattctg tctcaaaaaa aaaaaaaaaa 3000
aaaaaaaaaa agatgaaacc aagtatacaa gcccagaagc ctagggctaa tgggactgga 3060
gtgcaaaagg aagaattact ataaaatggt gctaggggcc aggcacggtg gctcacgcct 3120
gtaatcccag cactttggga ggccgaggcg ggcggatcac gaggtcagga gatcaagacc 3180
atcctggcta acacggtgaa atcacgtctc tactaaaaac acaaaaaatt agctgggcgt 3240
ggtggcaggt gactgtagtc ccagctactc gggaggctga ggcaggagaa tggtgtgaac 3300
ccgggaagca gagcttgcag tgagccgaga ttgcaccact gcactccagc ctgggcgaca 3360
gagcgagact ccgtctcaaa aaaaaaaga aaaaaaagg tgctaggtac tgtgactgtg 3420
aaatcgatat cattattgga tttacagctg gggaaaagct ttaaagctta tacaacttgg 3480
caaatgaagg tcacacagct agaaatggta gagcccaggt ctaactccaa agttctgtgc 3540
tagttacctt acaaactttg tctctaatct tccacaatcc caaaaagtgt attattacat 3600
tttgcagttg agaaggttga ggctgggggt gttaagtaaa acacacaagg ttacacagct 3660
atgaagtatc caagccaaga ttgtatccca ggtctgtggg actccgaagc aagtgctaca 3720
ttctgctgct gggcaatgcg gggattactg tgtgccttga gctccctaag agttctcaac 3780
accacttctt cctttttgac aggctctggc tgggctttga ccttcgctcc gaccctggcc 3840
tgcctgtcct gttatttctc tcgccgacga tccctggcca ccgggctggc actgacaggc 3900
gtgggcctct cctccttcac atttgccccc ttttttccagt ggctgctcag ccactacgcc 3960
tggaggggggt ccctgctgct ggtgtctgcc ctctccctcc acctagtggc ctgtggtgct 4020
ctcctccgcc caccctccct ggctgaggac cctgctgtgg gtggtcccag ggcccaactc 4080
acctctctcc tccatcatgg cccccttcctc cgttacactg ttgccctcac cctgatcaac 4140
actggctact tcattcccta cctccacctg gtggcccatc tccaggacct ggattgggac 4200
ccactacctg ctgccttcct actctcagtt gttgctatt ctgacctcgt ggggcgtgtg 4260
gtctccggat ggctgggaga tgcagtccca gggcctgtga cacgactcct gatgctctgg 4320
accaccttga ctggggtgtc actagccctg ttccctgtag ctcaggctcc cacagccctg 4380
gtggctctgg ctgtggccta cggcttcaca tcaggggctc tggccccact ggccttctct 4440
gtgctgcctg aactaatagg gactagaagg atttactgtg gcctgggact gttgcagatg 4500
atagagagca tcgggggggct gctggggcct cctctctcag gtaagtggaa tggggttccc 4560
aggggggtgag ggctgccatg ttgcacaact aggggagggt actattctca ttacagtgta 4620
tgtgaatatt gccctctggt gtagtacagt acacagcctg cgtggccaac catagcatcc 4680
ctgaaatggg tccatgggggc aaagaacttg gggctgggaa agtctgagtg gaaagacaaa 4740
aagaagctaa gtggaaccct tggcagggtg cctacggctt gggtttgcag aggacctggc 4800
agaacctggc cagacacaga cgtagcattc cagtgtgcac cctttccttt ggcctactgg 4860
gccccaaacc aggtatctga ggcacctggt caaagttctg ctggctcagg gtgccagaac 4920
tttcagacct ttatctcctc ttacccatta actgaagctt tagaaaggcc acagttggtg 4980
ggcgcctgta gtcccagcta ctcaggaggc tgaggcagga gaatggcatg aacccgggag 5040
gcggagcttg cagtgagctg agatcgcgcc actgcacttc agcctgggcg acagagcgag 5100
actccgtctc aaaaaaaaaa aaaaagaaa ggccacagtt gccagaaaga aaggcacaag 5160
tatgcctgac tcaatctgga tctccaaatc cctgcaggct ggtttggagg tcctttctga 5220
aggcggggag gtggttgaaa ttaacttttg aggccctttt gggaaaccag agttcttaag 5280
tttatccaac tattccatgg gagttccaac tcctctgaga tgataagtct ccctccacc 5340
caaaaatgta tctgagccct cagccccagc aaatagatca ctcatgtgta ttctttttct 5400
ctcttggacc taggctacct ccgggatgtg acaggcaact acacggcttc ttttgtggtg 5460
gctgggggcct tccttctttc agggagtggc attctcctca ccctgcccca cttcttctgc 5520
ttctcaacta ctacctccgg gccccaggac cttgtaacag aagcactaga tactaaagtt 5580
cccctaccca aggagggact ggaaggagga ctgaactcca cagagtcagg cccagaaagc 5640
caaagcttga cagctccagg tcttctcttg ccacgtcttg gtctccacag aaccacagtg 5700
ccttaagatt cttgatctgc ctcccctag agcaggcctg gggctcctgc aatgtgtgtg 5760
ccaacccttt gtattttgtt gaggactctt atttctccgt tactctccta accttttctt 5820
```

66

```
ctttttttctt tttcccgaga cggagtcttg ctctgttgcc caggctggag tgcagtgatg 5880
tgatctcggc tcactgcaac ctccgcttcc cgggttcaag cgattctcct gcctcagcct 5940
cccaagtagc tgggattaca ggcgggagcc accacacccg ctattttttt ttttttttttt 6000
tttnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnttttgg tagagacagg gtttcaccat 6060
gttggccagg atggtctcga actcctgacc ttgtgatcca cccccgccc ctccctcggc 6120
cttccaaagt gctgggatta caggcgtgag ccaccacacc cagcctcccc taacctttc 6180
taaaggaccc aggagttttg aaggatccgg gagttcctgc ttcactgagc tgtgaatcaa 6240
ctgtgaaaat caaaggccaa gagacttatc atgctttata taacatctct agtgttgcct 6300
cctgagtttc ttctctgaag acacatgttt gggaaacaaa actgtccctt tgagataaaa 6360
tcaaataaga aaattggata ataatcacaa cctcaaatg agctggggcc catatgcttg 6420
ggttggccga atggagtcat gcctggaagt ggaggagagt gtccaggagc tccgatgacc 6480
caaggcattt taaccctgga atctgctctc caggctacca ccacatacct ccctcttccc 6540
cattatccct gtggcttaga aaagaa                                    6566
```

```
<210> 4
<211> 456
<212> PRT
<213> Rattus norvegicus

<400> 4
Arg Gly Ala Gly Pro Pro Asp Gly Gly Trp Gly Trp Val Val Leu Gly
1               5                   10                  15
Ala Cys Phe Val Ile Thr Gly Phe Ala Tyr Gly Phe Pro Lys Ala Val
            20                  25                  30
Ser Val Phe Phe Arg Glu Leu Lys Arg Asp Phe Gly Ala Gly Tyr Ser
        35                  40                  45
Asp Thr Ala Trp Val Ser Ser Ile Met Leu Ala Met Leu Tyr Gly Thr
    50                  55                  60
Gly Pro Leu Ser Ser Ile Leu Val Thr Arg Phe Gly Cys Arg Pro Val
65                  70                  75                  80
Met Leu Ala Gly Gly Leu Leu Ala Ser Ala Gly Met Ile Leu Ala Ser
                85                  90                  95
Phe Ala Ser Arg Leu Leu Glu Leu Tyr Leu Thr Ala Gly Val Leu Thr
            100                 105                 110
Gly Leu Gly Leu Ala Leu Asn Phe Gln Pro Ser Leu Ile Met Leu Gly
        115                 120                 125
Leu Tyr Phe Glu Arg Arg Arg Pro Leu Ala Asn Gly Leu Ala Ala Ala
    130                 135                 140
Gly Ser Pro Val Phe Leu Ser Thr Leu Ser Pro Leu Gly Gln Leu Leu
145                 150                 155                 160
Gly Glu Arg Phe Gly Trp Arg Gly Gly Phe Leu Leu Phe Gly Gly Leu
                165                 170                 175
Leu Leu His Cys Cys Ala Cys Gly Ala Val Met Arg Pro Pro Pro Gly
            180                 185                 190
Pro Gln Pro Arg Pro Asp Pro Ala Pro Pro Gly Gly Arg Ala Arg His
            195                 200                 205
Arg Gln Leu Leu Asp Leu Ala Val Cys Thr Asp Arg Thr Phe Met Val
    210                 215                 220
Tyr Met Val Thr Lys Phe Leu Met Ala Leu Gly Leu Phe Val Pro Ala
225                 230                 235                 240
Ile Leu Leu Val Asn Tyr Ala Lys Asp Ala Gly Val Pro Asp Ala Glu
                245                 250                 255
Ala Ala Phe Leu Leu Ser Ile Val Gly Phe Val Asp Ile Val Ala Arg
            260                 265                 270
Pro Ala Cys Gly Ala Leu Ala Gly Leu Gly Arg Leu Arg Pro His Val
            275                 280                 285
Pro Tyr Leu Phe Ser Leu Ala Leu Leu Ala Asn Gly Leu Thr Asp Leu
```

67

```
                290                    295                    300
Ile Ser Ala Arg Ala Arg Ser Tyr Gly Thr Leu Val Ala Phe Cys Ile
305                    310                    315                    320
Ala Phe Gly Leu Ser Tyr Gly Met Val Gly Ala Leu Gln Phe Glu Val
                325                    330                    335
Leu Met Ala Thr Val Gly Ala Pro Arg Phe Pro Ser Ala Leu Gly Leu
                340                    345                    350
Val Leu Leu Val Glu Ala Val Ala Val Leu Ile Gly Pro Pro Ser Ala
                355                    360                    365
Gly Arg Leu Val Asp Ala Leu Lys Asn Tyr Glu Ile Ile Phe Tyr Leu
                370                    375                    380
Ala Gly Ser Glu Val Ala Leu Ala Gly Val Phe Met Ala Val Thr Thr
385                    390                    395                    400
Tyr Cys Cys Leu Arg Cys Ser Lys Asn Ile Ser Ser Gly Arg Ser Ala
                405                    410                    415
Glu Gly Gly Ala Ser Asp Pro Glu Asp Val Glu Ala Glu Arg Asp Ser
                420                    425                    430
Glu Pro Met Pro Ala Ser Thr Glu Glu Pro Gly Ser Leu Glu Ala Leu
                435                    440                    445
Glu Val Leu Ser Pro Arg Ala Gly
                450                    455
```

<210> 5
<211> 456
<212> PRT
<213> Mus musculus

<400> 5

```
Arg Gly Ala Gly Pro Pro Asp Gly Gly Trp Gly Trp Val Val Leu Gly
1                    5                    10                    15
Ala Cys Phe Val Val Thr Gly Phe Ala Tyr Gly Phe Pro Lys Ala Val
                20                    25                    30
Ser Val Phe Phe Arg Glu Leu Lys Arg Asp Phe Gly Ala Gly Tyr Ser
                35                    40                    45
Asp Thr Ala Trp Val Ser Ser Ile Met Leu Ala Met Leu Tyr Gly Thr
                50                    55                    60
Gly Pro Leu Ser Ser Ile Leu Val Thr Arg Phe Gly Cys Arg Pro Val
65                    70                    75                    80
Met Leu Ala Gly Gly Leu Leu Ala Ser Ala Gly Met Ile Leu Ala Ser
                85                    90                    95
Phe Ala Ser Arg Leu Val Glu Leu Tyr Leu Thr Ala Gly Val Leu Thr
                100                    105                    110
Gly Leu Gly Leu Ala Leu Asn Phe Gln Pro Ser Leu Ile Met Leu Gly
                115                    120                    125
Leu Tyr Phe Glu Arg Arg Arg Pro Leu Ala Asn Gly Leu Ala Ala Ala
                130                    135                    140
Gly Ser Pro Val Phe Leu Ser Met Leu Ser Pro Leu Gly Gln Leu Leu
145                    150                    155                    160
Gly Glu Arg Phe Gly Trp Arg Gly Gly Phe Leu Leu Phe Gly Gly Leu
                165                    170                    175
Leu Leu His Cys Cys Ala Cys Gly Ala Val Met Arg Pro Pro Pro Gly
                180                    185                    190
Pro Pro Pro Arg Arg Asp Pro Ser Pro His Gly Gly Pro Ala Arg Arg
                195                    200                    205
Arg Arg Leu Leu Asp Val Ala Val Cys Thr Asp Arg Ala Phe Val Val
210                    215                    220
```

68

```
Tyr Val Val Thr Lys Phe Leu Met Ala Leu Gly Leu Phe Val Pro Ala
225                 230             235                 240
Ile Leu Leu Val Asn Tyr Ala Lys Asp Ala Gly Val Pro Asp Ala Glu
                245             250             255
Ala Ala Phe Leu Leu Ser Ile Val Gly Phe Val Asp Ile Val Ala Arg
            260             265             270
Pro Ala Cys Gly Ala Leu Ala Gly Leu Gly Arg Leu Arg Pro His Val
        275             280             285
Pro Tyr Leu Phe Ser Leu Ala Leu Leu Ala Asn Gly Leu Thr Asp Leu
        290             295             300
Ile Ser Ala Arg Ala Arg Ser Tyr Gly Thr Leu Val Ala Phe Cys Ile
305             310             315                 320
Ala Phe Gly Leu Ser Tyr Gly Met Val Gly Ala Leu Gln Phe Glu Val
            325             330             335
Leu Met Ala Thr Val Gly Ala Pro Arg Phe Pro Ser Ala Leu Gly Leu
            340             345             350
Val Leu Leu Val Glu Ala Val Ala Val Leu Ile Gly Pro Pro Ser Ala
            355             360             365
Gly Arg Leu Val Asp Ala Leu Lys Asn Tyr Glu Ile Ile Phe Tyr Leu
        370             375             380
Ala Gly Ser Glu Val Ala Leu Ala Gly Val Phe Met Ala Val Thr Thr
385             390             395                 400
Tyr Cys Cys Leu Arg Cys Ser Lys Asn Ile Ser Ser Gly Arg Ser Ala
            405             410             415
Glu Gly Gly Ala Ser Asp Pro Glu Asp Val Glu Ala Glu Arg Asp Ser
            420             425             430
Glu Pro Met Pro Ala Ser Thr Glu Glu Pro Gly Ser Leu Glu Ala Leu
        435             440             445
Glu Val Leu Ser Pro Arg Ala Gly
        450             455
```